Claims

1. A method for transmitting an input stream of symbols in a multiple-input / multiple-output wireless communications system including M subgroups of transmitting antennas, comprising:

selecting L subgroups of the M subgroups of antennas, where $L < M$;

demultiplexing, the input stream into L substreams, there being one substream for each one of L selected subgroups of antennas;

adaptively modulating and coding each of the L substreams to a maximum data rate while achieving a predetermined performance on an associated channel used to transmit the substream; and

space-time transmit diversity encoding each of the L coded substreams into a set of output streams, there being one output stream in each set for each antenna of each one of the L subgroups of antennas.

2. The method of claim 1, further comprising:

feeding back, from a receiver, channel conditions; and

selecting the L substreams to be produced by the demultiplexing according to the channel conditions.

3. The method of claim 2, in which the channel conditions measure a signal to interference plus noise ratio of the output streams received in the receiver.

4. The method of claim 1, in which the adaptive modulation and coding depends on the number L of the substreams.

5. The method of claim 1, in which L is zero to increase an overall capacity of the system including a plurality of receivers.

6. The method of claim 1, in which the adaptive modulating and coding, further comprises:

coding each substream;

interleaving each coded substream; and

symbol mapping each interleaved substream.

7. The method of claim 1, further comprising:

demultiplexing each output stream into a plurality demultiplexed output streams;

multiplying each of the plurality of demultiplexed output streams by an orthogonal variable spreading factor;

adding the demultiplexed output streams, for each ouput stream, after multiplication into a summed output stream corresponding to each output stream; and

multiplying each summed output stream by a scrambling code.

8. A system for transmitting an input stream of symbols in a multiple-input / multiple-output wireless communications system including M subgroups of transmitting antennas, comprising:

a switch configured to select L subgroups of the M subgroups of antennas, where $L < M$;

a demultiplexer configured to split the input stream into L substreams, there being one substream for each one of L subgroups of antennas;

means for adaptively modulating and coding each of the L substreams to a maximum data rate while achieving a predetermine performance on an associated channel used to transmit the substream; and

means for space-time transmit diversity encoding each of the L coded substream into a set of output streams, there being one output stream in each set for each antenna of each one of the L subgroups of antennas.